What is claimed is:

1. A plug for separating fluids successively introduced into a wellbore comprising an inner mandrel and an outer foam sleeve secured thereto.

2. The plug according to claim 1 wherein the inner mandrel is generally cylindrical in shape having an upper and lower end and has a hollow inner passage through which fluids may pass.

3. The plug according to claim 2 wherein a nose is attached to the lower end of the inner mandrel.

4. The plug according to claim 3 wherein a recess is formed within the nose of the inner mandrel and the plug further comprises an elastomeric flat face seal ring disposed therein.

5. The plug according to claim 2 wherein a recess is formed within the upper end of the inner mandrel

6. The plug according to claim 5 wherein a high pressure disc is secured within the recess of the upper end of the inner mandrel.

7. The plug according to claim 5 wherein a rupturable member is secured within the recess formed within the upper end of the inner mandrel.

8. The plug according to claim 2 further comprising a rupture disc for selectively allowing fluid flow through the inner passage.

9. The plug according to claim 1 wherein the outer foam sleeve is generally cylindrical in shape and has a hollow inner passage inside of which the inner mandrel is coaxially disposed and bonded thereto.

10. The plug according to claim 1 wherein the outer foam sleeve comprises a compressible open-cell foam.

11. The plug according to claim 1 wherein the inner mandrel comprises a drillable material.

12. The plug according to claim 1 wherein the outer foam sleeve comprises a plurality of ribs.

13. The plug according to claim 1 wherein the inner mandrel is formed of a solid drillable material.

14. The plug according to claim 1 wherein a nose is attached to an end of the inner mandrel.

15. The plug according to claim 14 wherein the nose is threadably attached to the end of the inner mandrel.

16. The plug according to claim 14 wherein the nose has holes formed in an inner surface for receiving pins.

17. The plug according to claim 16 further comprising a fluid stopper plug disposed within the nose and secured thereto by pins held within the holes.

18. The plug according to claim 17 further comprising at least one elastomeric ring disposed between the fluid stopper plug and the inner surface of the nose, which creates a fluid seal therebetween.

19. The plug according to claim 1 wherein the inner mandrel has a funnel-shaped upper end adapted to receive a taper-shaped nose from an adjacent plug.

20. A plug system for separating fluids successively introduced into a passage comprising an assembly of at least two plugs wherein at least one of the plugs comprises an inner mandrel and an outer foam sleeve secured thereto.

21. The plug system for separating fluids according to claim 20 wherein the assembly comprises two plugs each of which comprises an inner mandrel and an outer foam sleeve secured thereto.

22. The plug system for separating fluids according to claim 21 wherein the two plugs are linearly aligned in a top and bottom configuration.

23. The plug system for separating fluids according to claim 22 wherein the inner mandrel of each of the plugs is generally cylindrical in shape having an upper and lower end and has a hollow inner passage through which fluids may pass.

24. The plug system for separating fluids according to claim 23 wherein a nose is attached to the lower end of each inner mandrel.

25. The plug system for separating fluids according to claim 24 wherein a recess is formed within the nose of each inner mandrel and each plug further comprises an elastomeric flat face seal ring disposed within each such recess.

26. The plug system for separating fluids according to claim 25 wherein a recess is formed within the upper end of the inner mandrel of each plug.

27. The plug system for separating fluids according to claim 26 wherein at least part of the upper end of the inner mandrel of the bottom plug is adapted to mate with the nose of the top plug.

28. The plug system for separating fluids according to claim 26 wherein a high pressure disc is secured within the recess formed within the upper end of the inner mandrel of the top plug.

29. The plug system for separating fluids according to claim 26 wherein a rupturable member is secured within the recess formed within the upper end of the inner mandrel of the bottom plug.

30. The plug system for separating fluids according to claim 26 further comprising a float valve.

31. The plug system for separating fluids according to claim 30 wherein the nose of the bottom plug mates with the float valve.

32. The plug system for separating fluids according to claim 20 wherein the outer foam sleeve of the at least one plug is generally cylindrical in shape

and has a hollow inner passage inside of which the inner mandrel is coaxially disposed and bonded thereto.

33. The plug system for separating fluids according to claim 20 wherein the outer foam sleeve of the at least one plug comprises a compressible open-cell foam.

34. The plug system for separating fluids according to claim 20 wherein the inner mandrel of the at least one plug comprises a drillable material.

35. The plug system for separating fluids according to claim 20 wherein the outer sleeve of the at least one plug comprises ribs.

36. The plug system for separating fluids according to claim 22 wherein the top plug comprises an inner mandrel having an upper and lower end with a taper-shaped nose attached at the lower end and the bottom plug comprises an inner mandrel having an upper and lower end with a nose attached at the lower end and a funnel-shaped recess formed at the upper end for engagement with the nose of the top plug.

37. The plug system for separating fluids according to claim 36 wherein the inner mandrel of the top plug is formed of a solid material and the inner mandrel of the bottom plug is tubular-shaped.

38. The plug system for separating fluids according to claim 37 wherein the nose of the top plug is threadably attached to the lower end of the solid inner mandrel and the nose of the bottom plug is integrally formed with the lower end of the tubular-shaped inner mandrel.

39. The plug system for separating fluids according to claim 38 further comprising a fluid flow stopper secured within the nose of the bottom plug.

40. The plug system for separating fluids according to claim 39 wherein the outer sleeves of the top and bottom plugs comprise ribs.

41. The plug system for separating fluids according to claim 36 wherein both inner mandrels are tubular-shaped defining internal flow channels.

42. The plug system for separating fluids according to claim 41 wherein the nose of the top plug is taper-shaped and integrally formed with the lower end of the inner mandrel and the nose of the bottom plug is taper-shaped and integrally formed with lower end of the tubular-shaped inner mandrel.

43. The plug system for separating fluids according to claim 42 further comprising fluid flow stoppers having adjustable release pressures secured within each of the noses of the top and bottom plugs.

44. The plug system for separating fluids according to claim 43 wherein the outer sleeves of the top and bottom plugs comprise ribs.

45. A method of separating fluids successively introduced into a subterranean well bore, comprising the steps of:

suspending an assembly comprising a plurality of plugs within a casing string, wherein at least one of the plugs comprises an inner mandrel and an outer foam sleeve secured thereto

introducing a first fluid into the well bore through the casing string;

introducing a second fluid into the well bore behind the first fluid such that an interface between the two fluids is formed; and

deploying the at least one plug within the casing string at the interface of the first and second fluids.

46. The method of separating fluids according to claim 45 further comprising the step of installing a float valve within the casing string proximate the deepest part of the well bore.

47. The method of separating fluids according to claim 45 wherein the assembly comprises two plugs linearly aligned in a top to bottom configuration and wherein both the top and bottom plugs comprise an inner mandrel and outer foam sleeve secured thereon.

48. The method of separating fluids according to claim 47 wherein the inner mandrel of each of the plugs is generally cylindrical in shape has an upper and lower end and has a hollow inner passage through which fluids may pass.

49. The method of separating fluids according to claim 48 wherein a nose is attached to the lower end of each inner mandrel.

50. The method of separating fluids according to claim 49 wherein a recess is formed within the nose of each plug and each plug further comprises an elastomeric flat face seal ring formed therein.

51. The method of separating fluids according to claim 50 wherein a recess is formed within the upper end of each plug.

52. The method of separating fluids according to claim 51 wherein at least part of the upper end of the inner mandrel of the bottom plug is adapted to mate with the nose of the top plug.

53. The method of separating fluids according to claim 52 wherein a high pressure disc is secured within the recess formed within the upper end of the inner mandrel of the top plug.

54. The method of separating fluids according to claim 53 wherein a rupturable member is secured within the recess formed within the upper end of the inner mandrel of the bottom plug.

55. The method of separating fluids according to claim 54 wherein the bottom plug is deployed at the interface of the first and second fluids and wipes an inside surface of the casing string clean of the first fluid as it travels down the casing string.

56. The method of separating fluids according to claim 55 wherein once the bottom plug reaches the float valve the nose of the bottom plug mates with the float valve.

57. The method of separating fluids according to claim 56 wherein the second fluid is pumped down the casing string under pressure until the rupturable member fails.

58. The method of separating fluids according to claim 57 wherein the top plug is released behind the second fluid and travels down the casing string wiping the inside surface of the casing string clean of the second fluid.

59. The method of separating fluids according to claim 58 wherein the top plug engages with the bottom plug at the float valve.

60. The method of separating fluids according to claim 59 wherein approximately all of the second fluid has completely filled an annulus disposed between the casing string and the well bore at the point at which the top plug engages the bottom plug.

61. The method of separating fluids according to claim 60 wherein the first fluid is a drilling fluid and the second fluid is a cement slurry.

62. The method of separating fluids according to claim 61 further comprising the step of drilling the plugs out of the casing string after the cement slurry has cured.

63. The method of separating fluids according to claim 47 wherein the top plug comprises an inner mandrel having an upper and lower end with a taper-shaped nose attached at the lower end and the bottom plug comprises an inner mandrel having an upper and lower end with a nose attached at the lower end and a funnel-shaped recess formed at the upper end for engagement with the nose of the top plug.

64. The method of separating fluids according to claim 63 wherein the inner mandrel of the top plug is formed of a solid material and the inner mandrel of the bottom plug is tubular-shaped.

65. The method of separating fluids according to claim 64 wherein the nose of the top plug is threadably attached to the lower end of the solid inner mandrel and the nose of the bottom plug is integrally formed with the lower end of the tubular-shaped inner mandrel.

66. The method of separating fluids according to claim 65 further comprising a fluid flow stopper secured within the nose of the bottom plug.

67. The method of separating fluids according to claim 47 wherein the outer sleeves of the top and bottom plugs comprise ribs.

68. The method of separating fluids according to claim 47 wherein both inner mandrels are tubular-shaped defining internal flow channels.

69. The method of separating fluids according to claim 68 wherein the nose of the top plug is taper-shaped and integrally formed with the lower end of the inner mandrel and the nose of the bottom plug is taper-shaped and integrally formed with lower end of the tubular-shaped inner mandrel.

70. The method of separating fluids according to claim 69 further comprising fluid flow stoppers having adjustable release pressures secured within each of the noses of the top and bottom plugs.

71. The method of separating fluids according to claim 70 wherein the outer sleeves of the top and bottom plugs comprise ribs.